



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/719,048	11/21/2003	Jong-Deok Choi	YOR9-2003-0227	2334
33221	7590	10/06/2006	EXAMINER	
HOLLAND & KNIGHT LLP 2099 PENNSYLVANIA AVE, N.W. WASHINGTON, DC 20006			KENDALL, CHUCK O	
			ART UNIT	PAPER NUMBER
			2192	

DATE MAILED: 10/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/719,048	Applicant(s) CHOI ET AL.	
	Examiner Chuck O. Kendall	Art Unit 2192	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
  - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
  - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 21 November 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

**DETAILED ACTION**

1. This application is response to application filed 11/21/03.
2. Claims 1 – 26 have been examined.

***Claim Rejections - 35 USC § 101***

3. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

4. Claims 18 – 26 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 18 – 26 recites a signal bearing medium. Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena.

***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

Art Unit: 2192

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

6. Claims 1 – are rejected under 35 U.S.C. 102(e) as being anticipated by Arnold et al. US 6,791,091 B1.

Regarding claims 1 and 9, a method for dynamic transformation of programs, said method operable at least in part within an information processing system, comprising:

- a. accessing a dynamic instrumentation interface of a mixed mode runtime environment (6:5 – 10, see instrumentation in the executing code); and
- b. controlling a compiler of the mixed mode runtime environment via the interface to transform a program (7:40 – 50, see controller and compiler).

Regarding claims 2 and 10, the method of claim 1, wherein the mixed mode runtime environment is a virtual machine and the compiler is a just in time (JIT) compiler (5:5 – 10), step a further comprising determining whether a first class is loaded (5:40 – 45), and step b comprising, if the first class is loaded, controlling the JIT compiler to compile the first class into an executable program and transform the executable program into a transformed program (5:45 – 50, see compilation of method).

Regarding claims 3 and 11, the method of claim 2, wherein the virtual machine is one of the group of a Java virtual machine and a .NET virtual machine, further comprising, if the first class is not loaded, storing transformation information relating to the first class and monitoring the virtual machine to determine when the first class is loaded (5:10 – 20, see JVM).

Regarding claims 4 and 12, the method of claim 3, wherein the steps of monitoring and determining when the first class is loaded are performed by a class loader responsive to instructions via the interface (5:40 – 55, see class loader also see 6:5 – 10, for VM instrumentation which is equivalent to the interface).

Regarding claim 7 and 16, the method of claim 1, wherein step a comprises initiating an instrumentation client program, the step of accessing comprises making a predetermined transformation call to the interface, and step b. comprises the instrumentation client controlling the compiler via the call to the interface (Arnold, 6:10 – 15).

### ***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

Art Unit: 2192

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 5 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold et al. US 6,791,091 B1 as applied in claim 2 and 10, in view of Sexton et al. USPN 6,854,114 B1.

Regarding claims 5 and 13, Arnold discloses all the claimed limitations as applied in claims 2 and 10. Arnold doesn't expressly disclose, wherein the virtual machine is one of the group of a Java virtual machine and a .NET virtual machine, further comprising, if the first class is loaded, allowing a current instantiation of the first class to run until terminated. However, Sexton in an analogous art and similar configuration discloses that each session is assigned its own VM instance and do not have to compete for the same VM resources and further states that the instantiation is discarded at the termination of the call (5:50 – 65). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Arnold and Sexton because, it would enable more efficient maintenance of the VM resources.

9. Claims 6, 8, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arnold et al. US 6,791,091 B1 as applied in claim 2, 10, 7 and 16 in view of Sexton et al. USPN 6,854,114 B1.

Regarding claim 6 and 15 Arnold discloses all the claimed limitations as applied in claims 2 and 10. Arnold doesn't expressly disclose, wherein the virtual machine is one of the group of a Java virtual machine and a .NET virtual machine, further comprising, when the first class is already loaded, replacing currently running code based on an old-object method of the first class with the transformed program and adjusting an activation stack so existing invocations of the old-object method continue executing after adjusting the activation stack. However, Alexander in an analogous art of a mixed mode interpreter/compiler discloses replacing previously executed with newly constructed code (10:45 – 11:5) and also discloses that the stack frame contains the information for constructing the current methods execution (12:1 – 5). Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine Arnold and Sexton because, it would enable recreating the current method's execution state (Alexander, 12:1-10).

Regarding claims 8 and 17, the method of claim 7 and 16, wherein the predetermined call is one of a group consisting of:

InsertNewBytecodesBefore; InsertNewBytecodesAfter; DeleteBytecodes; ReplaceClassfile; ReplaceMethod; InsertJNICallBefore; and. InsertJNICallAfterclass (10:45 – 11:5, see replace method).

Regarding claim 14, the system of claim 13, further comprising operating instructions independent of the VM, wherein the transformed program is operably

executed by the operating instructions independent of the VM (5:5 – 10, see native and interpreted code).

Regarding claim 18, which recites the program product version of claim 1, see rationale above as previously discussed.

Regarding claim 19, which recites the program product version of claim 2, see rationale above as previously discussed.

Regarding claim 20, which recites the program product version of claim 3, see rationale above as previously discussed.

Regarding claim 21, which recites the program product version of claim 4, see rationale above as previously discussed.

Regarding claim 22, which recites the program product version of claim 5, see rationale above as previously discussed.

Regarding claim 23, which recites the program product version of claim 14, see rationale above as previously discussed.



Regarding claim 24, which recites the program product version of claim 6, see rationale above as previously discussed.

Regarding claim 25, which recites the program product version of claim 7, see rationale above as previously discussed.

Regarding claim 26, which recites the program product version of claim 8, see rationale above as previously discussed.

### **Correspondence information**

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chuck Kendall whose telephone number is 571-272-3698. The examiner can normally be reached on 10:00 am - 6:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Dam can be reached on 571-272-3695. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

Application/Control Number: 10/719,048

Page 9

Art Unit: 2192

you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ck.

Chuck Kendall 6/6/05